

LIFE-SAVING WORK OF DR. LEVY

City Bacteriologist Gives Excitingly Interesting Interview.

EXPERIMENTS IN EACH CASE

Dr. Levy Makes the Scientific Procedure Plain With Separate Tests Before Reporter.

Richmond has made no step forward in a number of years that is so pregnant with possibilities of good for its citizens as the establishment of a department of bacteriology. This long needed reform is the direct outcome of the work of Dr. E. G. Williams, member of the Council.

It will be hard to imagine a more interesting visit than one to Dr. Ernest C. Levy's laboratory, on the fourth floor of the City Hall. Here, with simple looking, but absolutely certain apparatus, the doctor runs to death the bacilli of diphtheria, tuberculosis and typhoid fever. A Times Dispatch reporter called on Dr. Levy and asked him to give some description of the work he was trying to do, and the use he was making of his equipment. The doctor said:

"In fitting up this laboratory I have been guided by what is done in other cities where I have had the opportunity of seeing what is done. The Board of Health allowed me to follow out my own ideas in the equipment and in the routine of this office. Although the appropriation is very small, still, by moving the laboratory which I had already fixed up at the old pump-house for the water department, and by combining the two here at the City Hall, I have avoided the duplication of apparatus, and have thus been enabled to get a fairly satisfactory equipment. After a while when the importance and usefulness of this laboratory shall have been convincingly shown, I hope we will be able to get a more liberal appropriation and increase the usefulness of this department in proportion."

"I suppose the method of making a diagnosis by the aid of bacteriology consists in finding the germs of the disease and examining them under the microscope," said the reporter.

"The method is seldom the same in any two diseases," replied the doctor. "For instance, in diphtheria and consumption we look for the bacteria which cause these diseases, while in examining the blood for making a diagnosis of typhoid fever, we do not find the bacteria of this disease at all. But I will show you just what is done in each of these three diseases."

Makes An Experiment.

"When a doctor suspects a case of having tuberculosis (consumption), he gets one of these outfits from a culture station and has the patient expectorate into this bottle. Here is consumption, the bottles which came in this morning from such a case, and I will now examine it."

The doctor spread some of the sputum on a thin slip of glass, let it dry completely, and then passed it three times through the flame of a burner which stood on the table. Next a few drops of a deep red liquid were poured on the spread and the glass was held over the flame until steam began to rise. This was repeated several times. The glass was then washed in a stream of water.

"Now," said the bacteriologist, exhibiting the result to the reporter, "you see that everything which I have spread on this glass is stained a deep red—the germs of every kind which may be present, whether they are tubercle bacilli or not. The next step is to take the color out of everything except the tubercle bacilli. I will do this by passing this slide through some diluted nitric acid," he said, snatching the action to the word, "and you see that all the color seems to have been taken out of it, but if any germs of consumption are present they will have retained the red color. Next I pour some of this blue color and stain everything except the germs of tuberculosis, which hold on to the red color. This is now washed again and is ready for examination. Let us look at the specimen I have just prepared."

"After the doctor has adjusted the microscope, the reporter was invited to look into it.

"You will see, as soon as you have become accustomed to looking through the microscope, that nearly everything in this case looks blue, but notice carefully directly in the center of the field. Do you see those two little red lines? Well, they are tubercle bacilli, the germs of consumption, and this examination establishes, absolutely beyond question, that the patient from whom this sputum came is suffering from consumption."

Save Many Lives.

"And so," rejoined the reporter, "those little red lines mean that this person is doomed to die of consumption."

"Not so fast," replied the doctor. "It is just here that we hope to accomplish

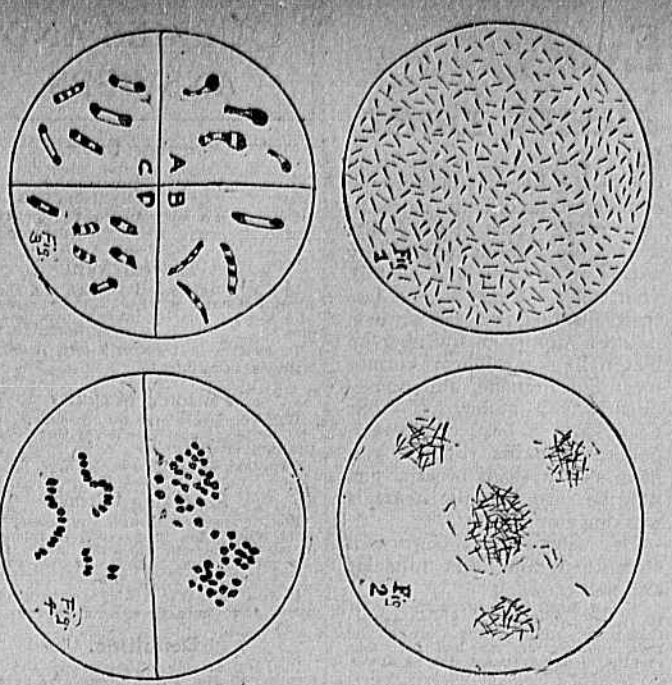


Fig. 1—Typhoid Bacilli, as they normally appear under the microscope.
Fig. 2—Typhoid Bacilli, as they appear when acted on by a drop of blood from a person who has typhoid fever.
Fig. 3—Showing the four types of Diphtheria Bacilli.
Fig. 4—Showing the two kinds of Bacteria most commonly found in false Diphtheria and Follicular Tonsillitis.

part of the good we expect from the establishment of this department. Nowadays we know that if consumption is recognized at a sufficiently early stage, it is by no means an incurable disease, and this laboratory enables physicians frequently to determine when a patient is suffering from consumption much earlier than they could otherwise do with certainty. In this single way many lives will be saved here. Let us look at the account which accompanied this case. You see this case is a young man of twenty-five, who has been sick with a bad cough for five months. The doctor reports the case as 'chronic bronchitis, suspicious of tuberculosis.' I find very few tubercle bacilli, thus showing that the disease is not far advanced. Furthermore, in reply to the questions on this list, you see the doctor tells us that there is no tuberculosis in this man's family, and that so far the patient has not lost weight to any great extent. This being the case, and the disease being still in its incipient stage, the chances of recovery are excellent, whereas, if this case had been allowed to go unrecognized until the patient had become greatly emaciated and had a cavity in his lung, the chances of recovery would have been slim.

"Not only this, but so long as it was not known that this person had consumption, he would have continued to go around, and by his careless expectoration distribute the germs of consumption broadcast, and almost certainly convey the disease to others. Now he should be cautioned to dispose of his sputum in such a manner as not to be a menace to others."

Diphtheria Case.

"Now I will show you," continued the doctor, "how we make our examination in a case of suspected diphtheria. Here is the diphtheria outfit which the laboratory furnishes to all the culture stations. It consists of a special box, containing a wooden tongue depressor, a sterile tube and swab, full directions to the doctor what he must do, and a blank for him to fill out, giving information as to the age, sex and color of the patient, the clinical diagnosis and several other points. The doctor passes the swab over the deposit in the throat, replaces it in the tube, fills out the blank and then returns the outfit to one of the culture stations up to 5 o'clock or to Wagner's as late as 8 o'clock. Every afternoon at 5 these outfits are collected by the sanitary inspectors of the board of health and taken to Wagner's drugstore."

"I go by Wagner's every evening about 8, and if I find any diphtheria outfits returned, I take them down to the laboratory and attend to them so that they will be ready for examination the first thing next morning. The swab is removed from the tube and passed thoroughly over the slanting surface of a special culture medium, made from coagulated beef blood. The culture is made in then put into an incubator where it is kept at body temperature until next morning. During this time the bacteria which were present in the patient's throat will multiply enormously, and next morning there will be an abundant growth covering the surface of the culture medium. I am just about to examine two cultures which came in yesterday evening, and you can see the remaining steps for yourself."

"Here is a tube of coagulated blood serum which is used as a culture medium for this special purpose. This tube has not been inoculated. The surface, you will observe, is perfectly smooth. Now look at the tubes I am about to examine. Here you see the surface of the culture medium is studded with an immense number of little white drops about the

size of a small pin-head. These are 'colonies' of bacteria, and the smallest of these colonies is made up of millions of individual bacteria. These colonies may or may not be diphtheria bacilli, so the next step is to examine the bacteria under the microscope."

The doctor took a small slip of glass out of the tube drawer, and on it placed a drop of water. The tube was then opened and some of the growth removed with a platinum wire, which had just been sterilized by passing it through the flame of a Bunsen burner until it was red hot, and then allowing it to cool. This growth was then mixed with the drop of water on the glass and thoroughly spread over its surface. The drop was then allowed to dry.

"Now," resumed the doctor, "you see this white film on the glass. This is made up of countless numbers of bacteria, but it is not yet ready for microscopic examination. Bacteria are almost perfectly transparent, so they could not be examined satisfactorily in this condition. We, therefore, stain them. This not only makes the bacteria more plainly visible, but also brings out certain peculiarities which are characteristic of the germs of diphtheria. The stain used in this special case is a blue aniline color. It is first necessary to 'fix' the bacteria on the glass so that they will not be washed off by the next steps to which this is subjected. This is done by passing the glass through the flame of a Bunsen burner or a solution of methylene blue. Next this is washed off, and you see the film of bacteria is now colored blue. I now dry the film with filter paper and it is ready for examination."

Makes It Certain.

"There are several types of diphtheria bacilli, which differ from each other in some particulars, though there are certain well marked characteristics of the entire group. The specimen we are now examining is from a clear case of diphtheria. You see these rod-shaped bodies, some of them clubbed at the ends, and most of them stained a much more deeply at the ends. Well all of these are typical diphtheria bacilli, and this examination establishes absolutely the nature of this case."

"But," asked the reporter, "cannot diphtheria be mistaken for other things by a physician, without having a bacteriological examination made?"

"In a large number of cases this can be done," rejoined Dr. Levy, "but there are a great many cases which look exactly like diphtheria but which bacteriological examination shows to be false diphtheria—pseudo-diphtheria." It is known. On the other hand, we often come across very mild cases of throat trouble, which clinically appear very slightly or not at all suspicious of diphtheria, but which bacteriological examination proves to be the true disease. These mild cases can give the disease to others just as well as can the more severe ones, hence it is advisable to have this examination made in every case. When the doctors get in the habit of having this done as a matter of routine, as is done in other cities where the office of city bacteriologist has been long established, there is no doubt but that there will be a decided lessening of the number of cases of diphtheria in the city."

"If the specimen which we have just examined had not been from a case of true diphtheria, what would we have found?" asked the reporter.

"In that case," replied the doctor, "instead of these bacilli, or rod-shaped organisms, we would have found small round bacteria, arranged either in chains or in irregular groups. Here is such a specimen, and you will see that it presents an appearance entirely different from the

one we have just looked at, which was from a case of true diphtheria.

"The test is of course not only in determining whether or not a case is real diphtheria, but also for the purpose of deciding when the period of contagiousness is past, in other words, when a case of diphtheria can no longer give the disease to others. We make regular examinations, at intervals of a few days, after each case has apparently recovered. So long as these germs continue to be found in the throat, we know the case is still infectious. This point can be decided in no other way, as some cases we find that the bacilli disappear within two or three days, while again they may persist for a number of weeks. In the latter instance, although the patient is to all appearances entirely recovered, the bacilli are still there, and such a person can convey the infection to others just as well as when he was at the height of the disease."

Most Interesting of All.

"Perhaps the most interesting of all the bacteriological tests is the one for typhoid fever. As I mentioned just now, in this test we do not find the germ of the disease at all. But here, again, the best way to explain is to show you exactly what is done."

(Going to the refrigerator which stood in the laboratory, Dr. Levy brought out a rack of test tubes and removed one of them for the reporter's inspection.

"You see this tube contains a transparent jelly. You see the two white streaks on the surface of this jelly. Well, these are made up of countless millions of typhoid bacilli. Where did I get them? Why, originally they came, of course, from a case of typhoid fever, but this culture is one which I got from the Bacteriological Laboratory of the Boston Board of Health. It is the same culture which they use in making the test for typhoid fever. Every day a minute specimen of this growth is transported to a tube of fresh jelly, and put in the incubator, where it is kept at the temperature of the human body. Within twelve hours an abundant growth has taken place, and the new tube contains as many bacteria as the one from which it was taken. It is necessary to keep this culture of the germ, the bacillus of typhoid fever, in order to test a patient's blood for that disease. I will now show you how this is done."

"Here is a drop of blood sent in this morning for examination. It is sent in on this slip of aluminum foil. The foil contains the skin to get the blood, a little wire loop, and full directions to the doctor how to proceed in getting the sample. I first add a little water to the dry blood and mix the blood and water together. Now I take a drop of this diluted blood and put in a glass 'cover slip,' and then add to this drop a very minute amount of this culture of typhoid bacilli, which I have just shown you. The drop is then inverted over this depression in another piece of glass and is then ready to examine under the microscope."

"Look at it now, and you will see a number of very small, thread-like bodies swimming around like a lot of minnows. These are typhoid bacilli, and remember, they came not from the patient whose blood we are testing, but from this tube of typhoid bacilli which I keep on hand for this test. So far, the specimen now under the microscope has exactly the same appearance, whether this is a case of typhoid fever or not. The bacilli, of course, are present in either instance. But keep on looking at this specimen, and if this is really a case of typhoid fever, you will see a decided change occur. Look at it now and tell me what you see."

The reporter did so, and even to his unaided eye the difference was apparent.

"Why, yes," he replied, "the bacilli are not swimming as actively as they were at first."

"That is right," remarked Dr. Levy, "and in a little while they will cease moving altogether, and, furthermore, they will gather together in clumps, instead of remaining evenly distributed over the field as they were at first. If both of these things happen—that is, the loss of motility and the agglutination—as this clumping is technically called, then we can be quite certain that the blood which caused these changes was gotten from a patient suffering from typhoid fever, or else that the patient has had typhoid recently. On the other hand, a failure to get this typical reaction is not absolute proof that the patient has not got typhoid fever. The test fails in a small proportion of cases, so it is not absolutely reliable as the test for diphtheria or tuberculosis, but the percentage of failures is so small that the test is still of immense service."

V. P. I. GLEE CLUB.

Preparing for a Trip Through the Southwest Colleges.

(Special to The Times-Dispatch.)
BLACKSBURG, VA., February 17.—The Virginia Polytechnic Institute Glee Club will give its first entertainment outside of college this season in Christiansburg to-night.

The Glee Club made very favorable hits on its trip last season and having been greatly strengthened this season may the addition of several very powerful voices, its success this year will no doubt be more pronounced than they were last.

Next week a trip will be taken through the Southwest, and on Thursday night a recital will be given at the Virginia Institute at Bristol; Friday night at Stonewall Jackson Institute, Abingdon, and Saturday night in Wytheville, for the benefit of St. John's Episcopal Church. Later on a more extended trip will be made through Potomac, Pocahontas, Bluefield and towns in that vicinity.

The club is composed of Professor F. H. Abbott, director and soloist; Mr. C. Williams, manager; Messrs. J. L. Baum, G. C. Mabey, C. Williams, first tenors; Messrs. J. W. Grandy, B. C. Tynes, second tenors; Messrs. E. W. Lawson, H. D. Hodgson, first basses; Messrs. J. T. Holt, G. K. Jenkins, second basses.

Messrs. Holt and Hodgson are soloists, and Mr. Jenkins performs variety sketches on the violin. Professor Abbott is the accompanist.

Mr. W. O. Frith, editor of the Blacksburg News, is in Richmond attending the meeting of the Grand Lodge of Masons.

Mr. W. Z. Gordon, Newport News, Va., a former student of the Virginia Polytechnic Institute, has returned to his home after spending several weeks at Hotel Tutwiler.

The local Alumni Association of the Virginia Polytechnic Institute, will hold its first meeting of the season Tuesday night, Dr. Meade Ferguson, professor of forestry in the college, is president.

Miss Browning, of Pocahontas, has returned to her home after several days' visit to Mr. William Lybrook, on Church Street.

The Shaving-Brush.

It is likely that the best shaving brush ever made sheds more or less hairs. To prevent this take an elastic band, neither too heavy nor too light; cut it once (not in two), and holding one end firmly on the handle, wind the rubber around the bristles as close up to the handle as you can stretch it, taut as you wish it. When you come to the end tie it in a simple flat knot (not a granny knot) or else lose the end. By careful winding a very neat job can be done, and the bristles can be worn down to the socket without losing a hair.

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We Want the Women of Richmond Here To-Morrow

SPRING DRESS GOODS are here in plenty, and you won't run across a prettier display. It's really worth coming many miles to see this, the choicest and most elaborate showing on record. A visit means much to you—there's economy stamped on every bolt of these handsome stuffs. Don't be elsewhere—be here, by all means, to-morrow, for there's some price-surprises ready for you.

Among them:

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| 45-inch Grey Mixed and Invisible Plaid Panama Suitings 50c | 50-inch Plain and Invisible Plaid Panama Cloths, in all shades of grey, navy, brown and green \$1.00 |
| 36-inch Shepherd's Checks, in green, blue and black and white 50c | 54-inch Chiffon Panama Suitings, in all the new combinations in grays \$1.25 |
| 38-inch All-Wool Panama Suitings 50c | 54-inch Cream Serge Suitings, with dainty colored hairline stripes and plaids, the new street novelty, guaranteed to wash \$1.50 |
| 44-inch Pin Checked Spot Proof English Suitings 75c | A full line of Cream Serges, Mohair, Sicilian, Albatross, Batiste and Voiles, 50c, 58c, 65c, 75c, 85c and \$1.00. |
| 36-inch Mohair, in all shades of grey, blue and green 50c | |
| 45-inch Extra Heavy Mohair Sicilian, one of the most silky and beautiful fabrics out \$1.00 | |

Springtime and the Linens

AT THIS time of the year we turn our minds naturally to house renovating and furnishing. Our purchases, made many months ago, (many of them our own importations), have begun to arrive, and will continue weekly until all are in.

We show our usual variety of Linens in our HOUSEHOLD LINEN DEPARTMENT to suit all requirements, such as Suiting Linens, Shirt-Waist Linens, Embroidery Linens, Art Linens and Linen Damasks, in grades of unusual wearing quality. Crashes, Towels, Napkins and Doylies, Stair and Furniture Linens, Colored and Tan Dress Linens.

A new and beautiful line of Japanese and Mexican Drawn Linen, all hand work, and at prices which will surprise the purchaser.

Among the specials for Monday, and until sold, is a lot of 8-4 and 10-4 All-Linen Fringed Tablecloths at 65c and 85c—value \$1.00 and \$1.25

Some Real Pretty Wash Goods are Ready

THIS IS unquestionably the favorite showing. Many times larger than ever before—besides, we are fortunate in getting them in so early. The advanced thoughts are here—some we won't be able to duplicate later. Why not do early choosing this year? 'Twill pay from the point of completeness and price.

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| Beautiful assortment of very fine Printed French Organdie, the quality usually sold at 25c; our season price, 12 1-2c | Elegant Printed Silk Mulls, white grounds, with printed Roquets, interspersed with shaded dots, something rarely beautiful, only 30c |
| Printed Silk Mulls, in dark grounds, with white Oriental figures; something new in this market 50c | See display in Dress Goods Department, up-town aisle. |

Agents McCall Bazar Patterns

DRUNKENNESS CURED

Give Orrine and Destroy All Desire for Drink. Sold Under Guarantee.

The medical profession has long since recognized the fallacy of attempting to cure a drinking man of his intemperate habits by moral suasion. Drunkenness is a disease, and no disease is more common and so seldom recognized. A victim of the drink habit can no more resist liquor than a man with acute can resist silvering.

The terrible craving for liquor is a symptom of disease, and to overcome it the disease itself should be treated in a scientific way. When one has used whiskey, beer or other stimulants for a long time the nerve cells have become accustomed to the effects of the stimulants, and demand liquor in order to perform their duties. If the nerve cells are properly treated, the craving for liquor will be destroyed.

This is far too practical an age for "faith cure" fakery. It will not now be contended by many sane persons that organic diseases can be cured by mental processes.



Read What the Polk Miller Drug Company Says About Orrine.

"In the three years that we have been handling Orrine, many individual cases have come under our notice where the preparation has been used with great success. Mothers and sisters have told us of husbands and brothers who, since they were given Orrine, in most cases without their knowledge, all desire for drink seems to have disappeared, and much comfort and joy has now appeared in once desolate homes. We have never had anything but what was good to say about Orrine, and have previously written you from time to time of our absolute confidence in it. As a rule, we do not care to handle such preparations, and until the agency for Orrine was given us, we took no notice of preparations of like nature. We feel sure that in handling this preparation we are doing a great deal of good. We have absolute confidence in Orrine, and it is a pleasure for us to recommend and vouch for its merit."

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